

Amendment to the Claims

Please amend claims 1, 6, 7, 11, 12 and 13; and add a new claim 14, as follows.

1. (Currently Amended) A method for tracking incremental changes to a file, especially for a large and/or sparse file, for efficient backup thereof, said method comprising the steps of:

backing up said file to create a backup copy of said file;

processing a write request relevant to at least one block of said file by storing changes in information for said file and by providing an indication that information stored in said at least one block of said file is new data, said write request providing the capability for application programs to determine changes to said file by [reading] an incremental read of only blocks of said file that contain new data; and

backing up said file using at least one select block having said indication that information stored in said at least one block of said file is new data [, said backing up of at least one select block being further determined based on a time stamp associated with said at least one block].

2. (Original) The method of claim 1 in which said indication is stored in inode data for said file.

3. (Original) The method of claim 1 in which said indication is stored in indirect blocks referenced by inode data for said file.

4. (Previously Cancelled)

5. (Previously Amended) The method of claim 1 in which said further determination is based on two time stamps associated with said at least one block.

6. (Currently Amended) A method for retrieving incremental changes to backed up block level data, especially from large and/or sparse files, each file comprising a plurality of blocks, said method comprising the steps of:

providing two time stamps to a file system in a read request; and

returning information with respect to changes in said blocks made between times indicated by said two time stamps, such that application programs are provided with the capability of determining changes to said file system by [reading] an incremental read of only blocks that have been changed.

7. (Currently Amended) A method for backing up sparse files and tracking incremental changes thereto, said method comprising the step of:

writing to a backup file in a write request to a file system in which at least one user specified portion of said file is defined to have a specified value and in which the size of said at least one portion is specified by said user, said write request providing the capability for application programs to determine changes to said file by [reading] an incremental read of only blocks of said file that contain new data, the incremental read of said file returning an indication of a hole for each portion of the file not containing data specified by said user, such that said write request inserts holes into said backup file, thereby bringing said backup file up to date."

8. (Original) The method of claim 7 in which there are a plurality of said portions.

9. (Original) The method of claim 7 in which said specified value is zero.

10. (Original) The method of claim 8 in which said specified value is predetermined.

11. (Currently Amended) A method for tracking incremental changes to a backed up file, especially for a large and/or sparse file, said method comprising the steps of:

processing a write request relevant to at least one block of said file by storing changes in information for said file and by providing an indication that information stored in said at least one block of said file is new data, said write request providing the capability for application programs to determine changes to said file by [reading] an incremental read of only blocks of said file that contain new data; and

backing up said file using at least one select block having said indication that information stored in said at least one block of said file is new data, said backing up of at

least one select block being further determined based on a time stamp associated with said at least one block.

12. (Currently Amended) A computer readable medium having computer executable instructions for causing a data processor to track incremental changes to a file, especially for a large and/or sparse file , for efficient backup thereof, by carrying out the steps of:

backing up said file to create a backup copy of said file;

processing a write request relevant to at least one block of said file by storing changes in information for said file and by providing an indication that information stored in said at least one block of said file is new data , said write request providing the capability for application programs to determine changes to said file by [reading] an incremental read of only blocks of said file that contain new data; and

backing up said file using at least one select block having said indication that information stored in said at least one block of said file is new data , said backing up of at least one select block being further determined based on a time stamp associated with said at least one block.

13. (Currently Amended) A data processing system containing executable instructions, in memory locations of said data processing system, for causing said data processing system to track incremental changes to a file, for efficient backup thereof, by carrying out the steps of:

backing up said file to create a backup copy of said file;

processing a write request relevant to at least one block of said file by storing changes in information for said file and by providing an indication that information stored in said at least one block of said file is new data , , said write request providing the capability for application programs to determine changes to said file by [reading] an incremental read of only blocks of said file that contain new data; and

backing up said file using at least one select block having said indication that information stored in said at least one block of said file is new data ,said backing up of at

least one select block being further determined based on a time stamp associated with said at least one block.

14. (New) The method of claim 1 in which said backing up of at least one select block is further determined based on a time stamp associated with said at least one block.